Utah Division of Air Quality
New Source Review Section

Form 16
Soil/Groundwater Hydrocarbon Remediation

Consulting Company: _____
Address: _____
_____
Telephone Number: _____
Fax Number:_____
Source Number: _____
Date: _____

Contamination Information

1. Initial location of contamination (include address):
_____
_____
_____
_____

2. Amount of material contaminated (cubic yards or tons of material being handled):
_____
_____
_____

3. Specific compounds contained in hydrocarbon contamination (list each by name, relative percentage of total and volatility rate or vapor pressure:
Name _____
% of Total _____
Vapor Pressure _____
Maximum lb/ton or
Concentration ppm _____

Process Information

4. Remediation will be performed: □ On location □ In-situ □ Excavated
□ Excavated and transported to a new location

5. Type of unit/method used for remediation:
□ Soil vapor extraction □ Biodegradation □ In-situ leaching
□ Soil aeration (land farming) □ Asphalt Incorporation □ Groundwater stripping
□ Excavation □ Thermal Treatment □ Other _____

6. Attach flow diagram and site plan of process:

Soil Vapor Extraction

7. Fan/blower requirements:
_____hp _____ft^3/min

8. Exhaust gas flow rate:
Design maximum: _____acfm at _____^oF
Average expected: _____acfm at _____^oF

9. Heater fuel: □ electric □ propane
□ kerosene □ other _____

10. Air flow control valves: □ Yes □ No

11. Stack height: _____ Stack diameter: _____ Stack gas exit temperature: _____

12. Expected concentration flow rate (grams/sec): _____

13. Pressure gauges: □ Yes □ No

14. Flow meters: □ Yes □ No

15. Attach discharge monitoring plan.

Soil/Groundwater Hydrocarbon Remediation
Form 16 (Continued)

Biodegradation

16. Kind of nutrients added to soil: _____
_____

17. Water flow rate:_____acfm

18. Pump requirements: hp _____ft^3\min_____

19. Number of wells: _____Recovery ____ Injection

In-situ Leaching

20. Surfactant used: _____

21. Pump requirements: hp _____ ft^3\min _____

22. Leachate flow rate:
Design maximum: _____acfm
Average expected: _____acfm

23. Number of monitoring wells: _____
_____

24. Describe treatment of leachate: _____
_____
_____

Thermal Treatment

25. Type of equipment: □ Rotary kiln □ Rotary drier □ Fluidized bed
□ Low-temperature thermal stripper □ Other _____

26. Company performing the incineration: _____
Approval Order # _____

27. Incineration capacity (tons/hr, etc.):
_____

Soil Aeration

28. Site of Aeration: _____
_____

29. Dimensions of aerated layer: _____ length
_____ width _____ depth

30. Type of soil: _____
_____

31. Method to be used to turn the soil and frequency of turning the soil: _____

Asphalt Incorporation

32. Company using soil in asphalt: _____

33. Approval Order # _____

Groundwater Stripping

34. Groundwater flow rate:
_____gals/min

35. Type of treatment: □ Packet tower
□ Oil/water separator □ Carbon adsorption
□ Other_____

36. Exhaust flow rate: _____

37. Expected concentration flow rate (grams/sec):
_____

38. Stack height: _____ Stack diameter: _____ Stack gas exit temperature: _____

39. Attach discharge monitoring plan

Soil/Groundwater Hydrocarbon Remediation
Form 16 (Continued)

Excavation

40. Name of landfill being used: _____

Emission Controls

41. Type of control:
□ Carbon Adsorption (Form 5) □ Afterburner (Form 3) □ Condenser (Form 7)
□ Baghouse (Form 10) □ Wet Scrubber (Form 9) □ Cover
□ Cyclone (Form 6) □ Other _____

42. Calculated emissions for this process:

PM_{10} _____Lbs/hr_____ Tons/yr NO_x _____Lbs/hr_____ Tons/yr

SO_x _____Lbs/hr_____ Tons/yr VOC _____Lbs/hr_____ Tons/yr

HAPs_____Lbs/hr (speciate)_____Tons/yr (speciate)

Submit calculations as an attachment.

Instructions Form 16 - Soil/Groundwater Hydrocarbon Remedation

NOTE: 1. **Submit this form in conjunction with Form 1 and Form 2.**
2. Call the Division of Air Quality (DAQ) at **(801) 536-4000** if you have problems or questions in filling out this form. Ask to speak with a New Source Review engineer. We will be glad to help!

1. Indicate the location where the contamination occurred.
2. Indicate what amount of material is being handled.
3. Specify what contaminates are present in the material. List the percentage of the total contaminate each substance makes up and indicate the volatility of each substance. Indicate the maximum concentration of each contaminate in pounds per ton of material contaminated.
4. Specify where and how the remediation will be preformed.
5. Specify what method of remediation will be used.
6. Attach a flow diagram and site plan to this application.
7. Indicate the horse power or the cubic feet per minute rating of the fan/blower.
8. Supply the exhaust gas flow rate at design maximum and the average expected.
9. Indicate what type of fuel will be used in the heater.
10. Indicate whether or not air flow control valves will be used.
11 State the stack height, diameter, gas exit temperature.
12. Supply the expected concentration flow rate in grams per second.
13. Indicate whether or not pressure gauges will be used.
14. Indicate whether or not flow meters will be used.
15. Attach a plan for monitoring discharge.
16. Indicate what type of nutrients will be added to soil for biodegradation.
17. Supply the water flow rate for water biodegradation.
18. Indicate the horse power or the cubic feet per minute rating of the fan/blower.
19. Indicate the number of recovery and number of injection wells on site.
20. Indicate what surfactant is being used in the leaching process.
21. Indicate the horse power or the cubic feet per minute rating of the pump.
22. Indicate what the leachate flow rate through the system is at design maximum and average expected.
23. Supply the number of monitoring wells used.
24. Describe how the leachate will be treated after it goes through the system.
25. Indicate what type of thermal treatment equipment will be used.
26. Indicate what company will be performing the thermal treatment and what the number of their approval order is.
27. Indicate what the incineration capacity will be.
28. Indicate the location of aeration.
29. Supply the dimensions of the aerated layer.
30. Indicate what type of soil is contaminated.
31. Indicate how the soil will be turned.
32. Indicate the company using the contaminated soil in asphalt.
33. Indicate what approval order the company is operating under.
34. Flow rate of groundwater through system.
35. Type of treatment of groundwater.
36. Indicate the exhaust gas flow rate.
37. Indicate the concentration flow rate in the exhaust gas in grams/sec.Indicate the stack height.
38. Supply the stack height, stack diameter, stack gas exit temperature.
39. Attach a plan for monitoring discharge.
40. Name the landfill where the excavated soil will be transported.
41. Indicate the control that will be used in the remediation. Submit the appropriate form for the control.
42. Supply calculations for all criteria pollutants and HAPs.